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P/3331-111 (CONT.)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Edward R. HOWORKA

Date: November 7, 2000

Serial No.: Not Yet Known

Filed: Herewith

For: ANONYMOUS TRADING SYSTEM WITH IMPROVED QUOTE INPUT CAPABILITIES

jc954 U.S. PTO
09/707824
11/07/00

Assistant Commissioner for Patents
Washington, DC 20231

REQUEST FOR CONTINUING APPLICATION UNDER 37 C.F.R. 1.53(b)

Sir:

This is a request for the filing of a Continuation application under the provisions of 37 C.F.R. 1.53(b) of pending application Serial No. 09/029,181, filed June 15, 1998, by Edward R. HOWORKA entitled "ANONYMOUS TRADING SYSTEM WITH IMPROVED QUOTE INPUT CAPABILITIES". The prior application is hereby incorporated by reference.

Enclosed is a copy of the prior application, including the oath or Declaration as originally filed. A copy of a subsequent Power of Attorney to the undersigned as filed in the prior application is also enclosed.

I hereby state that the attached papers are a copy of prior application Serial No. 09/029,181, filed June 15, 1998, without any new matter therein.

The filing fee is calculated as follows:

BASIC Filing Fee:	\$ 710.00
Number of Claims in Excess of 20: ___ x \$18	0.00
Number of Independent Claims over 3: ___ x \$80	0.00
One or more multiple dependent claims: \$260.....	\$ 0.00
TOTAL FILING FEE:	<u>\$ 710.00</u>

Check No. 1990 which includes the amount of \$710.00 in payment of the filing fee is enclosed herewith.

The Patent and Trademark Office is hereby authorized to charge any additional fees or credit any refund, at any time during the prosecution of this application, to Deposit Account No. 15-0700.

Please amend the specification by inserting at page 1, after the title, the following paragraph:

--RELATED APPLICATIONS

This is a continuation of application Serial No.09/029,181, filed June 15, 1998, now allowed, which is based upon PCT International Application No. PCT/US96/14086, filed August 28, 1996, which claims priority to Provisional Application No. 60/002,856, filed August 28, 1995.--

This application includes four (4) sheets(s) of drawings containing Figures 1-4.

Priority under 35 U.S.C. §119 based on Provisional Application No. 60/002,856, filed August 28, 1995, is claimed.

The prior application was assigned to EBS Dealing Resources, Inc., and is recorded at Reel 9338, Frame 671.

The power of attorney in the prior application is to customer no. 2352, OSTROLENK, FABER, GERB & SOFFEN, LLP, 1180 Avenue of the Americas, New York, New York 10036-8403, and the members of the firm: Samuel H. Weiner, Reg. No. 18,510; Robert C. Faber, Reg. No. 24,322; Edward A. Meilman, Reg. No. 24,735; Stanley H. Lieberstein, Reg. No. 22,400; Steven I. Weisburd, Reg. No. 27,409; Max Moskowitz, Reg. No. 30,576; Stephen A. Soffen, Reg. No. 31,063; James A. Finder, Reg. No. 30,173; William O. Gray, III, Reg. No. 30,944; Louis C. Dujmich, Reg. No. 30,625, and Douglas A. Miro, Reg. No. 31,643, as attorneys with full power of substitution and revocation to prosecute this application,

to transact all business in the Patent and Trademark Office in connection therewith and to receive all correspondence. The Power appears in the original papers in the prior application.

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EXPRESS MAIL CERTIFICATE

I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail Post Office (mail label # EL583737347US) in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on November 7, 2000:

Dorothy Jenkins

Name of Person Mailing Correspondence

Dorothy Jenkins

Signature

November 7, 2000

Date of Signature

Respectfully submitted,

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APPLICATION INFORMATION

Title Line One:: Anonymous Trading System With Improved Q
Title Line Two:: uote Input Capabilities
Total Drawing Sheets:: 4
Formal Drawings?: Yes
Application Type:: Utility
Docket Number:: P/3331-111
Secrecy Order in Parent Appl.?: No

CONTINUITY INFORMATION

This application is a:: CONTINUATION OF
> Application One:: 09/029,181
Filing Date:: 06-15-1998

Which is a:: 371 OF
>> Application Two:: PCT/US96/14086
Filing Date:: 08-28-1996

Which is a:: NON PROV. OF PROVISIONAL
>>> Application Three:: 60/002,856
Filing Date:: 08-28-1995

Source:: PrintEFS Version 1.0.1

ANONYMOUS TRADING SYSTEM WITH IMPROVED QUOTE INPUT CAPABILITIES

TECHNICAL FIELD

The present invention is directed generally to computerized trading systems and more particularly to a method and apparatus for anonymous trading wherein an individual offer is made available only to a subset of the
5 available counterparties.

BACKGROUND ART

In many computerized trading systems, the participants (individual traders or institutions) are qualified in advance by an exchange and each offer is
10 broadcast from one participant to all other qualified participants.

When the subject of the trade is a commodity (such as wheat or copper) or a financial instrument (such as Treasury Bills or foreign currency), multiple offers for the same commodity or instrument are conventionally ranked by
15 price per unit. Depending on the trading conventions in effect, offers at the same price may be further ranked by size and/or time in a queue of available offers; however, for any given commodity or financial instrument, only one offer is at the head of an associated queue.

20 Under many market conditions, "market makers" (institutions and/or individual traders whose open offers are available to other traders) will set a price at or slightly above the best price currently available, with the

expectation that their offer will reach the head of the relevant queue in due course. However, if there is a sudden change in market conditions, the market maker may wish to cancel or modify his outstanding offer before it reaches the head of the queue. To that end, it is known to warn the trader
5 responsible for an open quote when his quoted price is equal to the best price currently available and/or when his offer reaches the head of queue. Similarly, if the maker's quote was ready to be accepted (ie, it is the highest ranked quote in the system) but is subsequently bettered by another maker, the original maker may be given an opportunity to revise his offer or
10 remove it from the market .

In the traditional voice broker foreign exchange market, the broker announces "Your bid" to a market maker when the maker's own quote is at the head of the queue; the broker also (optionally) announces and/or
15 cancels that quote when someone else submits a better price.

In an anonymous electronic brokerage system such as the EBS system or Reuters 2000-2 in which individual trades of foreign currency are settled directly between two banks (or "trading floors") rather than through an
20 exchange or a clearing house, the identity of the parties is kept confidential until an offer from one party has been matched to a bid from another party and the matching criteria include not only price, but also the existence of bilateral credit between the two parties. Thus, unlike a traditional voice broker who processes only one quote at a time (typically the first offer in
25 the queue) and who provides both parties with an opportunity to accept or reject a potential trade after the parties have already been identified, a computerized matching process is able to perform many tasks concurrently and to use objective matching criteria (such as preestablished counterparty credit limits) without divulging any confidential credit information. Moreover,
30 at least the known, EBS system operates in a credit screened market, in which a price is not offered to a potential counterparty unless it is "Dealable" — ie, each party to the potential transaction has previously

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indicated a willingness to deal with the other party. Thus there is no longer a single queue for a given currency, but a separate logical queue (typically containing only a subset of the open quotes for each trading floor).

Accordingly, the known EBS system displayed an active quote on the maker's terminal in a red background (a so-called "Red Quote") if that quote was either the best Dealable (or the best regular size Dealable) quote on at least one trading floor, ie, the quote was at the head of some floor's queue of "Dealable" quotes, thereby providing the maker with a signal that his quote has the potential of being about to be accepted. In addition to the visible warning (the quote is displayed on a red background, the EBS voice says "Your bid/offer" and the background of the key fields on the transaction panel turns from yellow to red. Preliminary versions of the EBS system also provided an indication if a quote was "joined" with a Red Quote, ie was in the Dealable queues of at least one trading floor and was equal to the best price that was Dealable to that floor, but was not at the head of the Dealable queue on any trading floor, and thus did not qualify as a Red Quote.

However, as a result the lack of credit between many possible pairs of trading partners and the fact that market makers are reluctant to make an offer that is substantially worse than the best price that is currently available, almost every quote is at the head of the queue on at least one trading floor, and thus the indication that a quote was Dealable on at least one trading floor had limited practical value.

A quote that lost its red status (as indicated by the transaction panel fields turning from red to yellow) is said to be "bettered". If the "Cancel When Bettered" option in the trader profile is set, such a bettered Red Quote was automatically canceled by the EBS system.

More recent versions of the EBS system have also included a capability for aggregating a regular size (typically US\$10 Million) Dealable quote from

several quotes for smaller quantities to display a synthetic "regular" size Dealable price whose individual components had priority in time and/or price over any other available quotes. In that case, the "regular Dealable price" would be equal to the worst priced component of the aggregated deal.

DISCLOSURE OF INVENTION

For each quote entered into the system by a market maker, the system determines if it is waiting to be "hit" (about to be accepted) at a substantial number of trading floors, and if so, notifies the trader originating the quote.

In accordance with one aspect of the invention, the substantial number of floors is preferably expressed as greater than a predetermined percentage of the available trading partners with whom credit has been established on a bilateral basis, and is preferably greater than 25%.

In accordance with another aspect of the invention, a quote is considered about to be accepted at a particular trading floor if it would be included as a component in an order at the Regular Dealable price currently available to that trading floor.

In accordance with yet another aspect of the invention, the system provides the market maker with a quantitative indication as to how many trading floors (or percentage of available trading partners) are about to accept his quote, and/or how good his quote must be to be Hittable by a given number of trading floors (or percentage of available trading partners).

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects and features of the present invention will be apparent from the following description of a presently preferred embodiment taken in connection with the accompanying drawings, in which:

Fig 1 is a functional overview of a computerized trading system in accordance with the present invention showing the sources of the data used to calculate the quote status message and how the status message is transmitted from the Arbitrator to the workstation.

5 **Fig 2** shows the Transaction Panel of the known EBS system, which may be used without modification with the present invention.

Fig 3 is a functional block diagram of the software which determines the current Red Quote status for a particular quote.

10 **Fig 4** shows an alternate embodiment for the Transaction Panel in which the ratio of Hittable floors to available partners is displayed as a horizontal bar graph below the quote, and a numerical indication of what price would be required to be Hittable at a given percent of available trading partners is shown above the quote.

15 DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENT

Fig 1 is a functional overview of the EBS system modified in accordance with the present invention. An early version of the EBS system is described in more detail in US 5,375,055, which is hereby incorporated by reference.

20

The Arbitrator node **ARB** computes and maintains the status of all open quotes and sends **QtePosition** messages to the maker's Mark Access Node (bank node) **MAN** signaling any changes in the status of a quote. If a trader uses the Cancel When Bettered option, the **QtePosition** message
25 also can be used by the bank node **MAN** to determine when his quote needs to be canceled.

Upon receiving the **QtePosition** message, the maker's bank node **MAN** sends the **QtePositionWS** message to the Workstation **WS**. The
30 Workstation then processes the **QtePositionWS** message, updating the quote status display (**Fig 2**) or canceling the quote, as appropriate.

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The processing of the **QtePosition** and **QtePositionWS** messages may be conventional and unchanged from prior versions of the EBS system. In particular, when the status of an active quote on the Maker's Transaction Panel (**Fig 2**) changes from normal (logical **0**) to red (logical **1**), the

5 background color **Y/R** of the box **PW** containing the least significant digits of the quoted price ("80" in the illustrated example) as well as the smaller box containing the Big Figure amount (1.40) changes from yellow to red. When the status changes from red to normal, either the quote is withdrawn (if Cancel When Bettered is active) or the background changes from red to

10 yellow.

A quote is "Hittable" from a trading floor, if a regular size hit from that floor would be automatically matched with some part of the quote. In the described embodiment, a quote is "red" if it is Hittable from more than the

15 specified percentage of the trading floors which have bilateral credit with the submitter of the quote. The percentage is a global system parameter, with a default value of 25%.

Suppose that the regular amount is 10M and that the following bids are

20 available (Dealable) to a trading floor **X** (ranked by decreasing price and then by increasing time of submission): Note that in foreign currency trading, the price is conventionally expressed in "pips" [least significant digits of base currency for a predetermined quantity of local currency], that the amount is conventionally expressed in millions of US dollars, and that a

25 quote can be either a single sided bid to buy the local currency, or a single-sided offer to sell the local currency, or a two-sided bid and offer [separated by a spread].

from decision block 104) and each time the bilateral credit status between any two trading floors changes (**Credit** branch from decision block 104).

In addition, in accordance with the present invention, for each quote **Q**, the
 5 Arbitrator uses the data in the trading floor queues to maintain (block 106) a respective count of floors H_Q from which the quote can be hit by a regular size buy/sell request (typically ten million US dollars).

The Arbitrator also maintains in known fashion (block 108) a credit
 10 availability matrix containing the bilateral credit status between each pair of trading floors that are currently connected to the system, which is then used to update the quote queues for any affected trading floors (block 102). In accordance with the present invention, for each floor **F**, the Arbitrator also uses the data in the credit availability matrix to maintain
 15 (block 110) the count of its partners P_F (i.e., other floors that have bilateral credit with the given floor).

The Arbitrator thus is able to dynamically adjust both counts (H_Q and P_F) in response to any trading or credit messages, and determine (block 112) for
 20 each quote whether the quote's H_Q -count is higher than a predetermined percentage (defined initially as 25%) of the P_F -count for the floor that submitted the quote. The result of this test is stored with the other data concerning that particular quote (block 114), and if the Red Quote status has changed, the QtePosition message is transmitted to the trading floor's
 25 bank node **MAN** (block 116).

The above operations may be clarified with a few numerical examples.

When **PctFloorsRedQte** = 25 (current default value) and **P** = 195, then a
 30 quote is red if it is Hittable from more than $(195 * 25) / 100 = 4875 / 100 = 48$ floors. This illustrates that the above definition of red status requires a strict inequality.

As also shown in **Fig 3**, the market maker may also (or alternatively) be provided with a numerical indication **SP** of what price would be required to be Hittable at a predetermined percent of available trading partners (for example, the same percentage **PctFloorsRedQte** as was used in **Fig 3**).

5 This could be readily computed by generating an ordered list of the worst Hittable prices (ie, the price required to complete the lowest ranking component of a regular sized deal) from the quotes of each available trading partner. Since the available partners are already identified in the credit matrix, and since each queue already contains a pointer to the last
10 component of the aggregated regular Dealable price, such a display would not require substantial additional computation, and would provide the market maker with additional assurances that his quote was competitive with other quotes in the market and was priced neither too high nor too low.

15 It should be apparent that the ratio **H/P** and the numerical price indication **SP** will change at a greater frequency than the Red Quote status **R/Y**. Accordingly, In a system having Market Distributor nodes **MD** as shown in Fig 1 which use a price queue similar to that maintained in the Arbitrator **ARB** for computing Dealable prices and transmitting them to the
20 individual trading floors **MAN**, performing the required computations in a more distributed fashion (in the Market Distributors) will make better use of the communication network.

Doubtless, other variations on the concepts underlying the present
25 invention will be apparent to those skilled in the art.

What is claimed is:

1. In a computerized trading system wherein quotes for a particular financial instrument or other commodity are selectively communicated from at least one market maker to a plurality of trading floors eligible to accept that offer:
 - 5 for each trading floor, taker queue means for determining which of the quotes available to that trading floor would be matched with a predetermined size hit from that trading floor;
for each quote from each market maker, quote status means responsive to each of the taker queue means for determining whether that
10 quote would be so Hittable at at least a predetermined plurality of trading floors,
notification means responsive to the quote status means for notifying each market maker whether his quote would be currently Hittable at said predetermined plurality of trading floors.
 2. The computerized system of claim 1, wherein
the predetermined plurality is a predetermined percentage of the available trading partners; and
the quote status is responsive to a credit matrix means indicating for
5 each market maker, those trading partners with whom credit has been established.
 3. The computerized system of claim 2, wherein the credit is established on a bilateral basis,
 4. The computerized system of claim 2, wherein the predetermined percentage is greater than 25%.
 5. The computerized system of claim 1, wherein
the taker queue means includes a queue for ranking the available offers for each commodity by price and time;

5 a regular size order constitutes a predetermined quantity of a particular commodity; and

a quote is considered Hittable at a particular trading floor if:

it is the highest ranking offer available to that trading floor for the particular commodity, or

10 it is available to that trading floor and all the available offers in the aggregate for that particular commodity do not exceed the predetermined quantity, or

15 if it would be matched with a regular size hit at the best price that would include not only the highest ranking offer but as many next highest ranked offers as would be necessary to constitute the predetermined quantity of the particular commodity.

6. The computerized system of claim 1, wherein the notification is in the form of a visual and/or audible indication on a terminal from which the quote originated.

7. The computerized system of claim 1, wherein the notification is in the form of a quantitative indication of the percentage of eligible trading partners for whom the quote is Hittable in a regular size hit.

8. The computerized system of claim 1, wherein the notification is in the form of a quantitative indication of the worst price that would be Hittable in a regular size hit by at least said predetermined number of trading partners.

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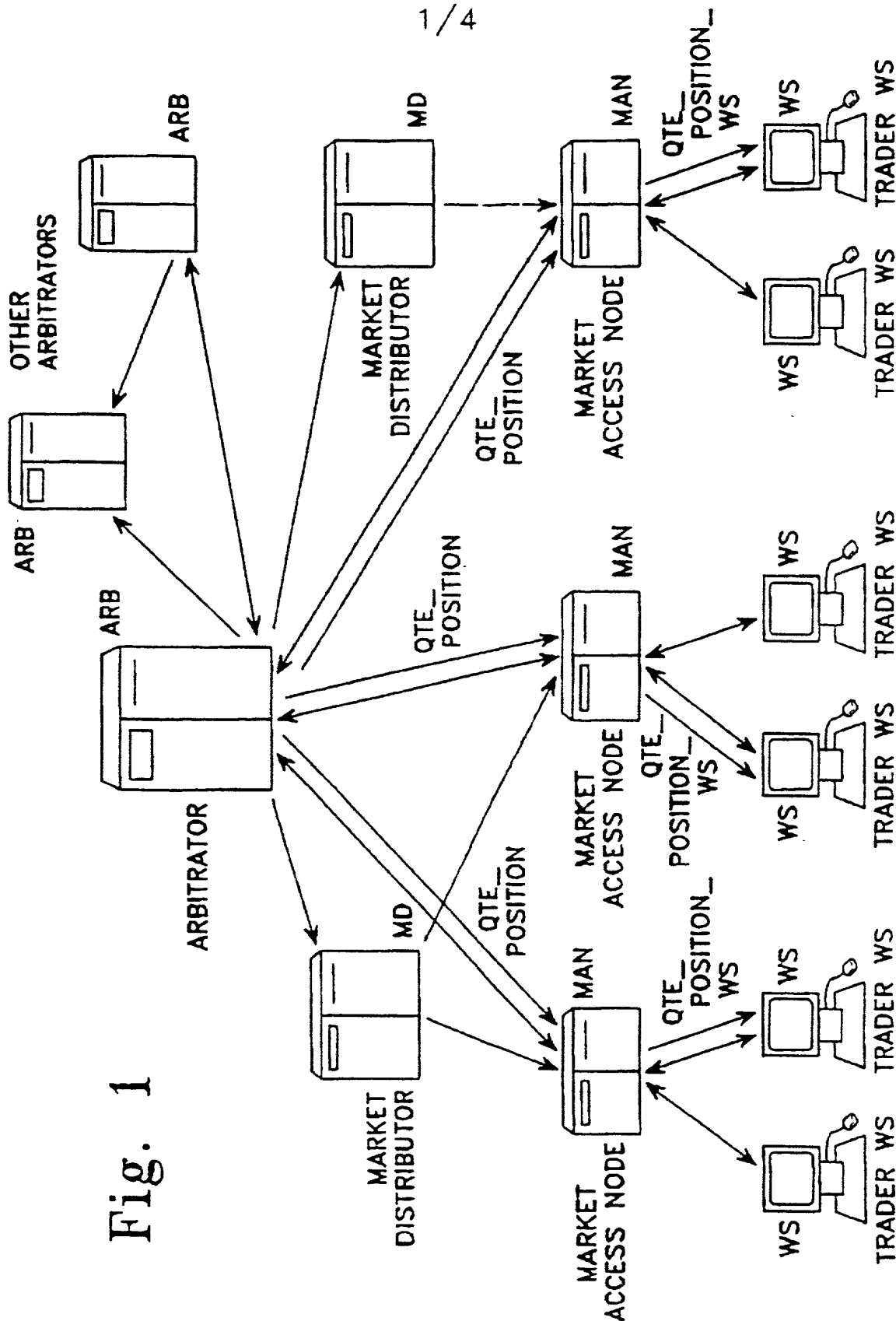


Fig. 1

OFFER					
04475	Sell	5	@ 1.4079	MGDL	
04582	Sell	4	@ 1.4079	SLFX	
PW					
				79	Y/R
				1.40	Y/R
off				9	of 10

Fig. 2

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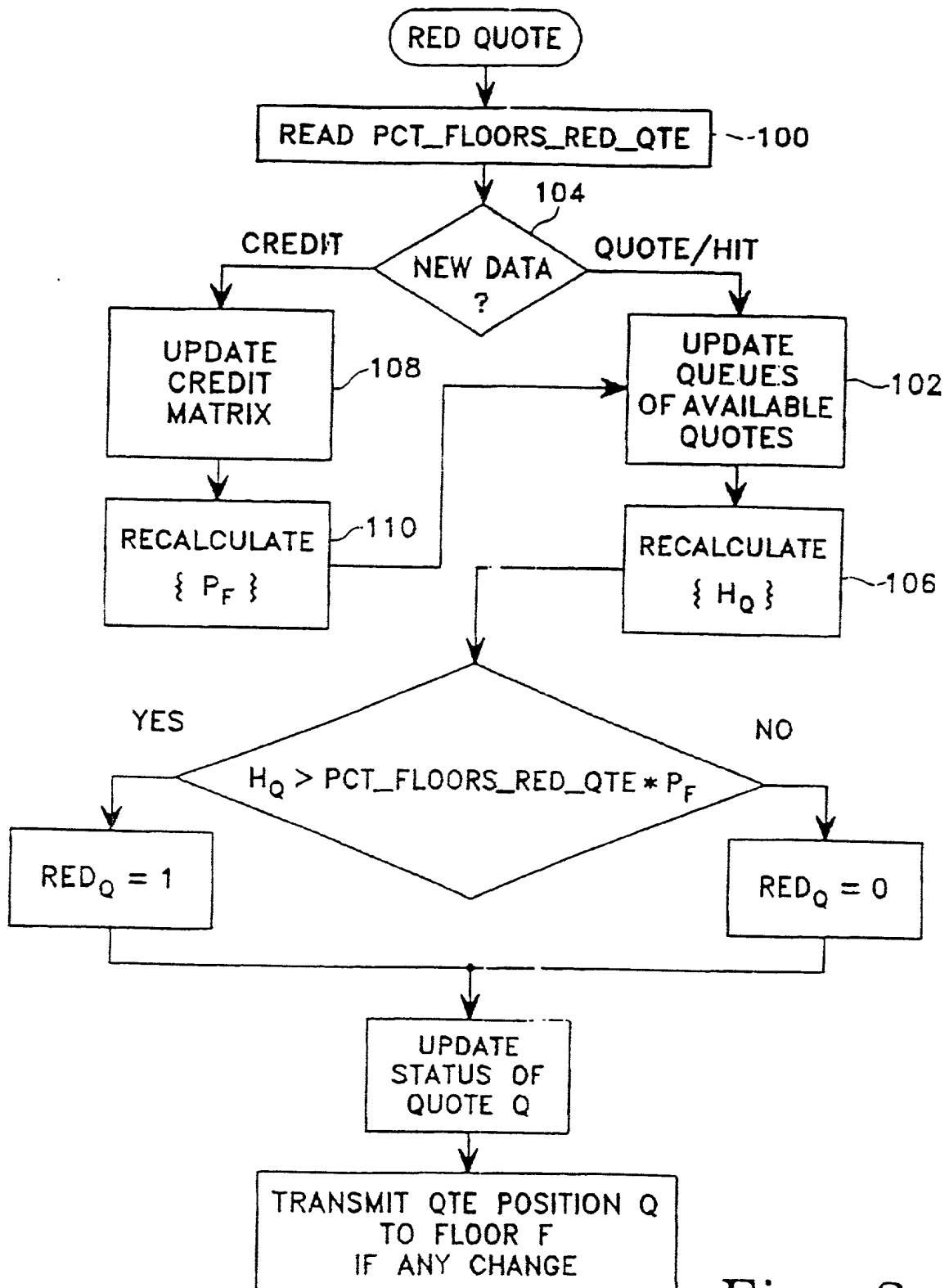


Fig. 3

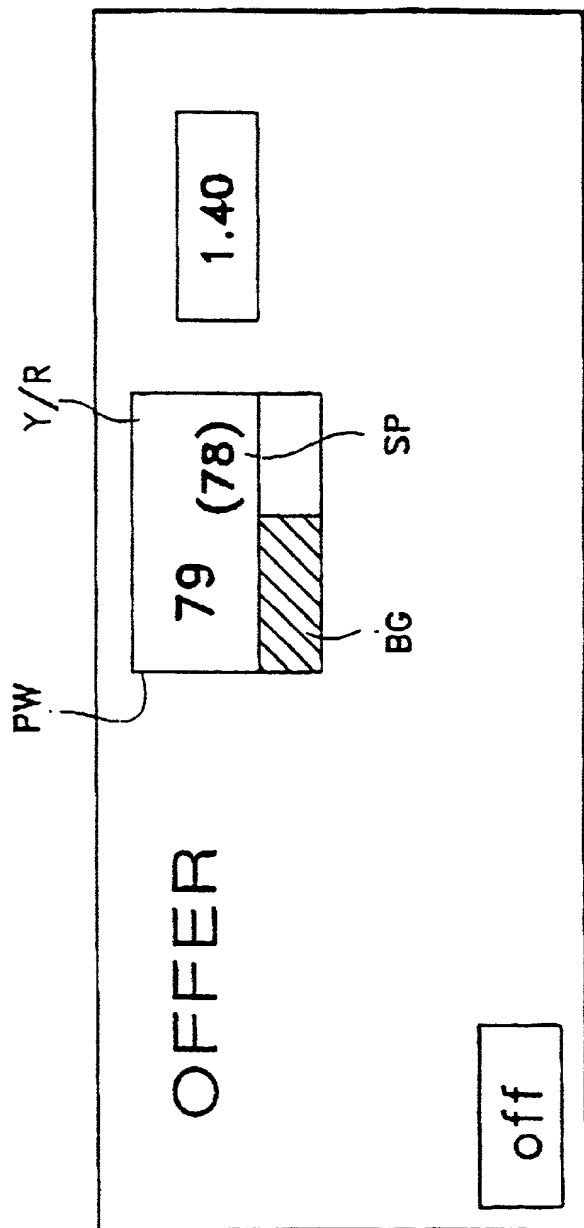


Fig. 4

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 PTO/SB/01 (8-96)
 Approved for use through 9/30/98 OMB 0651-0032
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DECLARATION

I hereby claim the benefit under Title 35, United States Code §120 of any United States application(s), or §365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application Number	PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)

☐ Additional U.S. or PCT international application numbers are listed on a supplemental priority sheet attached hereto

As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

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Robert Berliner	20,121	Pete A. Smits	39,036
M. John Carson	25,090	Margaret A. Churchill	39,944
Billy A. Robbins	18,313		
John M. May	26,200		
Michael S. Elkind	28,710		
Lisa Partain	40,763		

☐ Additional registered practitioner(s) named on a supplemental sheet attached hereto


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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor: ☐ A petition has been filed for this unsigned inventor

Given Name	Edward	Middle Initial	R	Family Name	Howorka	Suffix e.g. Jr.	
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Inventor's Signature		Date	MARCH 17, 1998
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☐ Additional inventors are being named on supplemental sheet(s) attached hereto

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of

Edward R. Howorka

U.S. Patent Appln. No.: 09/029,181

Filed: June 15, 1998

Title: ANONYMOUS TRADING SYSTEM
WITH IMPROVED QUOTE INPUT CAPABILITIES

Asst. Commissioner for Patents
Washington, DC 20231

POWER OF ATTORNEY

Sir:

The undersigned officer of EBS Dealing Resources, Inc., (EDRI), on behalf of EDRI, (1) states that on information and belief, EDRI is the owner of all right, title and interest in the above-identified patent or patent application (2) revokes all prior powers of attorney and (3) appoints OSTROLENK, FABER, GERB & SOFFEN, LLP and the members of the firm: Samuel H. Weiner (Registration No. 18,510); Harold Einhorn (Registration No. 20,345); Robert C. Faber (Registration No. 24,322); Edward A. Meilman (Registration No. 24,735), Stanley H. Lieberstein (Registration No. 22,400), Steven I. Weisburd (Registration No. 27,409), Max Moskowitz (Registration No. 30,576), Stephen A. Soffen (Registration No. 31,063), James A. Finder (Registration No. 30,173), William O. Gray, III (Registration No. 30,944), Louis C. Dujmich (Registration No. 30,625) and Douglas A. Miro (Registration No. 31,643), all members of the Bar of the State of New York, whose post office address is 1180 Avenue of the Americas, New York, New York 10036-8403, (212) 382-0700, as our attorneys with full power of substitution, association and revocation, to prosecute said application and to transact all business in connection therewith.

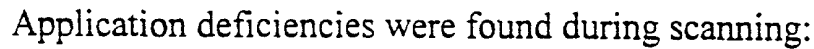
Respectfully submitted,

EBS DEALING RESOURCES, INC.

Dated: 27 April 2000

By: DET B

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☐ Scanned copy is best available.